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Title

A Quality Assessment of Clinical Practice Guidelines Used in Oral and Maxillofacial Surgery

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Abstract

An assessment of the quality of Oral and Maxillofacial surgery clinical practice guidelines is lacking. The aim of this investigation was to assess the quality of guidelines using the RIGHT (Reporting Items for practice Guidelines in HealThcare) checklist. The primary outcome was to assess the score (quality) of guidelines based on the RIGHT checklist and to identify predictors (region, type, single/or multi-center and speciality/non-speciality) influencing the quality score. In this review, following a search of electronic databases and national society websites, a total of 25 guidelines were independently assessed by two assessors against the 22-item RIGHT checklist. Inter-assessor reliability was assessed. Deficiencies in the reporting of items relating to Limitations, Funding, Declaration and Management of Interests, Health Care Questions and Quality Assurance were evident. The median overall score for the guidelines was 28 (range14-66). Guidelines produced by multi-centres (β = 57.15, 95% CI: -26.62, 87.68, p=0.001) and non-speciality societies (β = 20, 95% CI: -0.03-40.03, p=0.05) tended to have higher quality scores. Overall, the quality of clinical practice guidelines used in Oral and Maxillofacial surgery were deemed sub-optimal. If clinical practice guidelines are to be in making treatment decisions for patients, clinicians should be aware of their possible limitations.

Introduction

Clinical Practice Guidelines are systematically developed recommendations formulated in order to aid decision-making among healthcare professionals with regards to appropriate care provision in certain clinical scenarios[1]. There is evidence to suggest that well-designed, evidence-based and explicit guidelines may lead to significant improvements in outcomes of care when implemented in various domains of medical practice[2]. However, there are concerns regarding the quality of published guidelines over the past decades, with the majority not adhering to basic methodological standards in developing recommendations for practice[3,4]. The advocacy of such guidelines may promote harmful, ineffective and inefficient practice within healthcare[5]. Formatting... please waitSimilarly, there are concerns of bias relating to guidelines published by influential professional/specialist societies with increasing output of non-systematic expert opinions presented by specialists or society members as a means of publicity or increasing academic visibility[6]. This may potentially bring into question the reliability and validity of clinical recommendations put forward by such groups.

Therefore, it is of paramount importance to appraise the quality of clinical guidance and improve standards prior to their publication. There is evidence to affirm that reporting standards improves the quality of research[7-9]. Multiple instruments have been proposed as a means of assessing standards, notably such as the internationally validated AGREE (Appraisal of Guidelines, Research and Evaluation) instrument[10]. Recently, the RIGHT (Reporting Items for practice Guidelines in HealThcare) checklist formulated by an international working group developed in 2013, offers a novel approach in assessing the methodological quality of guidelines for users, authors and evaluators[11]. This comprises of a 22-item comprehensive checklist that were deemed essential for good reporting of practice guidelines by the group.

Such quality assessments have previously been conducted across the board in various medical and dental subspecialties[4,12,13], however a review of clinical guidelines within Oral and Maxillofacial Surgery is lacking. The purpose of this study was to assess the quality of clinical practice guidelines published within the field of Oral and Maxillofacial surgery as reflected by the score achieved when assessed using the RIGHT checklist. The investigators hypothesize that there is no difference in the scores (quality) between different guidelines. Specifically, we aimed to establish whether factors such as region, type of guidelines, single/or multi-center authors and speciality/or non-speciality produced guidelines can act as predictors for guideline quality.

Materials and Methods

Study design and sample

A cross-sectional assessment of Oral and Maxillofacial surgery clinical practice guidelines was undertaken. An electronic literature search was conducted across multiple databases in order to identify guidelines relevant to Oral Surgery or Oral and Maxillofacial Surgery. Conference abstracts, position statements and guidelines not published in English were excluded. A MEDLINE (Ovid) search, as well as searches on TRIP (Turning Research Into Practice), SIGN (Scottish Intercollegiate Guidance Network), SDCEP (Scottish Dental Clinical Effectiveness Programme) and NICE (National Institute For Health and Clinical Excellence) databases were conducted and results were restricted to the years 2000-2019. Further searching was carried out on relevant national and international organization websites such as AAOMS (American Association of Oral and Maxillofacial Surgeons), RCSEng (The Royal College of Surgeons of England) and BAOS (British Association of Oral Surgeons). All articles were first screened independently to identify relevant guidelines. Full-text articles were retrieved, and a secondary screening was then carried out with two assessors independent of each other (MA and AB) to identify suitable guidelines. A discussion was held subsequently, and any disagreements were

resolved with a third assessor (JS) in order to establish the final list of guidelines to be included in the study. (Figure 1)

Data variables and data collection

The RIGHT checklist (Appendix I) and score of each guideline was used as a means of reporting the quality and completeness of each of the guidelines identified. It comprises of 22 items with some subcategories making a total of 34 points on the checklist. These encompass a series of seven domains including: Basic Information (items 1 to 4), Background (items 5 to 9), Evidence (items 10 to 12), Recommendations (items 13 to 15), Review and Quality Assurance (items 16 and 17), Funding and Declaration and Management of Interests (items 18 and 19) and Other Information (items 20 to 22). Each guideline was independently assessed by two assessors, determining whether each item of the RIGHT checklist was fully reported (2 points), partially reported (1 point) or not reported (no points). The maximum score that could be achieved would be 68 representing complete adherence to the RIGHT checklist and a high level of quality. The "RIGHT Explanation and Elaboration: guidance for reporting practice guidelines" supplemental document was referred to directly by two assessors (MA and AB) when each guideline was assessed. A pilot assessment of 5 guidelines was carried out to assess inter-assessor reliability and confirm calibration of the assessors. Any discrepancies in the assessment amongst assessors were discussed with a third assessor (JS) until consensus was achieved. The following data variables were also recorded: year and continent of publication (region), number of authors, single or multi-centre publication i.e. contribution by authors at same or multiple institutions and whether the guideline was published by a specialty or non-specialty organization.

Data analysis

The level of agreement between assessors was evaluated using the Kappa statistic. A non-normal distribution of the data was assessed and confirmed from graphical methods. Descriptive statistics for individual reporting items of the RIGHT checklist were calculated. The quality score of each guideline was also determined. Median linear regression modelling was implemented with univariate analysis to identify characteristics associated with the median percentage total score; multivariate modelling was used to determine the adjusted effect on the median percentage total score. Significant predictors identified during the univariable analysis were entered individually in the multivariable model. The final model was derived by comparing candidate models using the likelihood ratio test. A two-tailed p-value of 0.05 was considered statistically significant. All analyses were performed using Stata statistical software version 15 (StataCorp, College Station, TX, USA)

Results

Inter-assessor reliability

The majority of checklist items demonstrated an acceptable level of inter-examiner reliability. (mean: 85.1%, SD: 19.0%, range 40-100%) (Table 1).

Search results

A total of 25 guidelines were identified across the databases (Figure 1) and (Table 2)

Guideline demographics

Of the 25 guidelines, 56% of guidelines evaluated were from the UK (n=14) with the remaining from the USA (n=11) (Table 3). The majority of guidelines were of single-centre origin (56%, n=14) and were specialty based (56%, n=14). Most guidelines identified were published after 2010, with over half (n=13) being from after 2016. When considering the evidence base of the guidelines, a larger proportion were seen to be of mixed-type (80%, n=20), encompassing formal evidence, consensus and expert opinion. 44% (n=11) of guidelines produced were by the American Association of Oral and Maxillofacial Surgeons (AAOMS), 28% (n=7) by the Royal College of Surgeons of England (RCSEng), 12% (n=3) by the Scottish Dental Clinical Effectiveness Programme (SDCEP) and the remainder by other institutions.

Quality of Reporting

Poorly reported areas included items **22** (Limitations of Guideline), **10** (Healthcare questions), **18** (Funding source and role of funder), **19** (Declaration and Management of Interests) and **17** (Quality assurance). Well-reported items included **20** (Access), **7** (Target population), **1** (Title/Subtitle), **13** (Recommendations) and **6** (Aim of the guideline and specific objectives). Item **13a** (Provide clear, actionable recommendations) was reported on in all guidelines, but was deemed incomplete or partially reported by the assessors in 40% of cases. Similarly, **11b**

(Referencing of systematic reviews and selection process) was reported on 84% of guidelines but was mostly partially reported (48%) (Table 4) (Figure 2). The overall median quality score for the total sample was 28 (range 14-66) (Table 2).

Linear Regression Analysis

Univariable analysis showed significant differences in the quality of guidelines produced by single and multi-centre (β =51.43, 95% CI: 30.32,72.54, p<0.01). Subsequent multi-variable analysis confirmed guidelines produced by multi-centres were of higher quality compared to guidelines produced by a single centre (β =57.15, 95% CI: -26.62, 87.68, p=0.001). In the univariable linear regression analysis, guidelines produced by non-speciality organisations achieved higher quality scores compared to speciality based guidelines (β =20, 95% CI: -0.03, 40.03, p<0.05) (Table 5).

Discussion

The aim of this study was to assess the quality of clinical practice guidelines published within the field of Oral and Maxillofacial surgery using the RIGHT checklist. The investigators' hypothesis that there is no difference between quality scores of guidelines was disproven as discussed below. The study results indicate the overall median score across the guidelines (n=25) was 28 (range 14-66). Whether factors such as region, type of guidelines, single/or multi-center authors and speciality/or non-speciality produced guidelines played a role in influencing quality score was also investigated. Guideline predictors that were of significance included multi-center produced guidelines which showed higher quality scores when compared to guidelines produced by a single centre. This is positively affirmed by Mubeen et al. [13] who also showed that guidelines produced within dentistry by multi-centers were of higher quality when assessed using the AGREE II checklist. The involvement of multiple centres may serve to reduce bias by promoting selection of stakeholders participating in guideline development from a wide range of backgrounds and interests. Furthermore, it was noted that non-specialty-based guidelines were

of higher quality than specialty-based when assessed using the RIGHT checklist. This has been eluded to in the literature [6] attributing this to the notion that non-specialty-based guidelines are more impartial and provide better quality guidance.

Items such as Access, Basic Information, Background and Aims and Objectives were all well reported with the worst reported items being Limitations, Funding, Declaration and Management of Interests, Health Care Questions and Quality Assurance. When looking generally at healthcare guidelines across Europe, previous studies have reported deficiencies in similar areas [14,15]. Quality Assurance (item **17**) was incorporated as a criterion in the RIGHT checklist, unlike the AGREE II instrument, with our data showing only 24% of guidelines reporting on this. Although quality assurance measures for guidelines exist, they are not always universally implemented as reported in this study findings, with a tendency for government programs to employ these more than professional societies [16]. As such, it has been suggested that in order for guidelines to maintain high quality standards they should be produced within structured and coordinated programs by leading guideline agencies, or if they are to be produced by specialist societies, quality criteria from guideline agencies should be adopted[17]. This was of note in this study, with guidelines produced through structured and coordinated programs reporting on a greater number of items on the RIGHT checklist. Limitations (item **22**), Funding (item **18**) and Declaration and Management of Interests (item **19**) were poorly reported, which raises concerns about bias in the current recommendations. Although it seems that overall guideline reporting quality has improved over the past decades, type and involvement of stakeholders seem to be especially poorly reported in practice guidelines developed by specialist societies[18]. It was also notable that processes assessing the certainty of the body of evidence (item **12)** were deemed fully reported in only 28% of guidelines evaluated. This is of particular significance with current emphasis being on evidence-based medicine and practice based on scientific principles. Guidelines based on formal evidence seemed to perform better based on reporting of items on the checklist, however, univariable analysis showed this not be of significance.

Item **10** (Healthcare Questions) which relates to the PICO framework (Population, Intervention, Comparison and Outcome) was fully reported in 4% of guidelines. This is a framework used to facilitate the formulation of clinical questions to aid research in guideline development. The RIGHT checklist is unique in its inclusion of PICO as an indicator of quality of evidence-based recommendations, associating this with more focused and targeted research. This lack of PICO reporting endures to be a common theme within the literature with one study attributing this to PICO not adequately representing questions relating to prognosis, diagnosis and aetiology[20]. The regression analysis found some variation in scores of guidelines published in Europe or North America, however, this was not significant. No guidelines from other continents were identified in our search, and there seems to be a trend in that most guidelines are published in high-income countries. This may be attributed to less funding and support from government agencies for guideline development and decreased likelihood of guidelines being published in indexed journals[14], therefore our results may not be representative universally.

It is stressed by the authors of the RIGHT checklist that it is has not been designed as a means of deriving an overall score to assess guideline quality, but rather it is an adjunct to other appraisal tools such as the AGREE II instrument to assess whether items not taken into account by other tools are reported[11]. The RIGHT checklist is the only tool that incorporates quality of evidence as part of guideline evaluation, with many other instruments designed lacking in this aspect[21]. Therefore, we believe the use of an overall percentage score evaluating which items were reported on was justified as a means of assessing how well existing guidelines conform to this checklist. Furthermore, as no previous assessment using has been undertaken, it was decided by the investigators to give each item equal weighting. Our literature search only yielded 25 guidelines and over half of these were written after 2016. This suggests that there is an evident shortage of clinical practice guidelines in oral and maxillofacial surgery, behind other domains of medicine, such as oncology, which has a longer history of guidance development with seemingly superior quality in comparison to other subject areas[19]. Although it is beyond the scope of this

study, it should be noted that guideline validity was not assessed as part of the RIGHT checklist, which has been suggested to be evaluated no later than 3 years after guideline publication. [22,23] Considering the range of publication dates of guidelines within Oral and Maxillofacial surgery, this may be an area of interest for future studies. Moreover, guidelines analysed in this study were from the US and UK only. Assessment of non-english guidelines would require translation of both the guideline and RIGHT checklist which may result in errors and misrepresentation of the quality scores. Kappa agreement scores showed generally a high level of inter-assessor reliability giving the study findings high external reliability. Accessibility to guidelines possibly reduced our sample size, and this combined with the factors previously mentioned may have led to biases within our data resulting from the over/under estimation of quality. Oral and Maxillofacial Surgery however, remains to be a field where only a handful of guidelines exist, thus the authors stress the need for further high quality guideline development to aid clinicians. Future studies may also wish to investigate and compare the quality of Oral and Maxillofacial guidelines to other medical or surgical specialties as well as the current validity of these guidelines.

In conclusion, the findings of this study have highlighted based on this sample of oral and maxillofacial guidelines the overall quality is low when assessed using the RIGHT checklist. The reporting of quality assurance processes, sources of funding, conflicts of interest and other potential sources of bias, as well as appraisal of the research and evidence base in the guideline development process requires improvement. Guidelines produced by non-speciality organisations and those produced by multiple centres tend to be of a higher quality. In the development of future guidelines, the use of non-speciality societies, multi-centres and the RIGHT checklist to ensure standards is advocated. If clinical practice guidelines are to be in making treatment decisions for patients, clinicians should be aware of their possible limitations.

Funding

None

Competing interests

None

Ethical approval

Not required

References

(1) Guidelines, Institute of Medicine (US) Committee on Standards for Developing Trustworthy Clinical Practice, Graham R, Mancher M, Wolman DM, Greenfield S, Steinberg E. Summary. : National Academies Press (US); 2011.

(2) Grimshaw JM, Russell IT. Effect of clinical guidelines on medical practice: a systematic review of rigorous evaluations. The Lancet 1993 /11/27;342(8883):1317-1322.

(3) Shaneyfelt TM, Mayo-Smith MF, Rothwangl J. Are Guidelines Following Guidelines?: The Methodological Quality of Clinical Practice Guidelines in the Peer-Reviewed Medical Literature. JAMA 1999 May 26,;281(20):1900-1905.

(4) Alonso-Coello P, Irfan A, Solà I, Gich I, Delgado-Noguera M, Rigau D, et al. The quality of clinical practice guidelines over the last two decades: a systematic review of guideline appraisal studies. Qual Saf Health Care 2010 /12/01;19(6):e58.

(5) Woolf SH, Grol R, Hutchinson A, Eccles M, Grimshaw J. Potential benefits, limitations, and harms of clinical guidelines. BMJ 1999 Feb;318(7182):527-530.

(6) Ioannidis JPA. Professional Societies Should Abstain From Authorship of Guidelines and Disease Definition Statements. Circ Cardiovasc Qual Outcomes 2018 Oct;11(10):e004889.

(7) Plint AC, Moher D, Morrison A, Schulz K, Altman DG, Hill C, et al. Does the CONSORT checklist improve the quality of reports of randomised controlled trials? A systematic review. Med J Aust 2006 Sep 04,;185(5):263-267.

(8) O'Leary JD, Crawford MW. Review article: reporting guidelines in the biomedical literature. Can J Anaesth 2013 Aug;60(8):813-821.

(9) Turner L, Shamseer L, Altman DG, Schulz KF, Moher D. Does use of the CONSORT Statement impact the completeness of reporting of randomised controlled trials published in medical journals? A Cochrane review. Syst Rev 2012 Nov 29,;1:60.

(10) Cluzeau FA, Burgers JS, Brouwers MM, Grol, R. P. T. M. Development and validation of an international appraisal instrument for assessing the quality of clinical practice guidelines: the AGREE project. Quality & Safety in Health Care 2003;12(1):18-23.

(11) Chen Y, Yang K, Marušic A, Qaseem A, Meerpohl JJ, Flottorp S, et al. A Reporting Tool for Practice Guidelines in Health Care: The RIGHT Statement. Ann Intern Med 2017 Jan 17,;166(2):128-132.

(12) Glenny AM, Worthington HV, Clarkson JE, Esposito M. The appraisal of clinical guidelines in dentistry. Eur J Oral Implantol 2009;2(2):135-143.

(13) Mubeen S, Patel K, Cunningham Z, O'Rourke N, Pandis N, Cobourne MT, et al. Assessing the quality of dental clinical practice guidelines. J Dent 2017 Dec;67:102-106.

(14) Alonso-Coello P, Irfan A, Solà I, Gich I, Delgado-Noguera M, Rigau D, et al. The quality of clinical practice guidelines over the last two decades: a systematic review of guideline appraisal studies. Qual Saf Health Care 2010 /12/01;19(6):e58.

(15) Tokalić R, Viđak M, Buljan I, Marušić A. Reporting quality of European and Croatian health practice guidelines according to the RIGHT reporting checklist. Implement Sci 2018 10 29,;13(1):135.

(16) Burgers JS, Grol R, Klazinga NS, Mäkelä M, Zaat J. Towards evidence-based clinical practice: an international survey of 18 clinical guideline programs. Int J Qual Health Care 2003 /02/01;15(1):31-045.

(17) Burgers JS, Cluzeau FA, Hanna SE, Hunt C, Grol R. Characteristics of high-quality guidelines: evaluation of 86 clinical guidelines developed in ten European countries and Canada. Int J Technol Assess Health Care 2003;19(1):148-157.

(18) Grilli R, Magrini N, Penna A, Mura G, Liberati A. Practice guidelines developed by specialty societies: the need for a critical appraisal. The Lancet 2000 /01/08;355(9198):103-106.

(19) Burgers JS, Fervers B, Haugh M, Brouwers M, Browman G, Philip T, et al. International assessment of the quality of clinical practice guidelines in oncology using the Appraisal of

Guidelines and Research and Evaluation Instrument. Journal of Clinical Oncology 2004;22(10):2000-2007.

(20) Evaluation of PICO as a knowledge representation for clinical questions. AMIA annual symposium proceedings: American Medical Informatics Association; 2006.

(21) Vlayen J, Aertgeerts B, Hannes K, Sermeus W, Ramaekers D. A systematic review of appraisal tools for clinical practice guidelines: multiple similarities and one common deficit. Int J Qual Health Care 2005 /06/01;17(3):235-242.

Figures and Tables

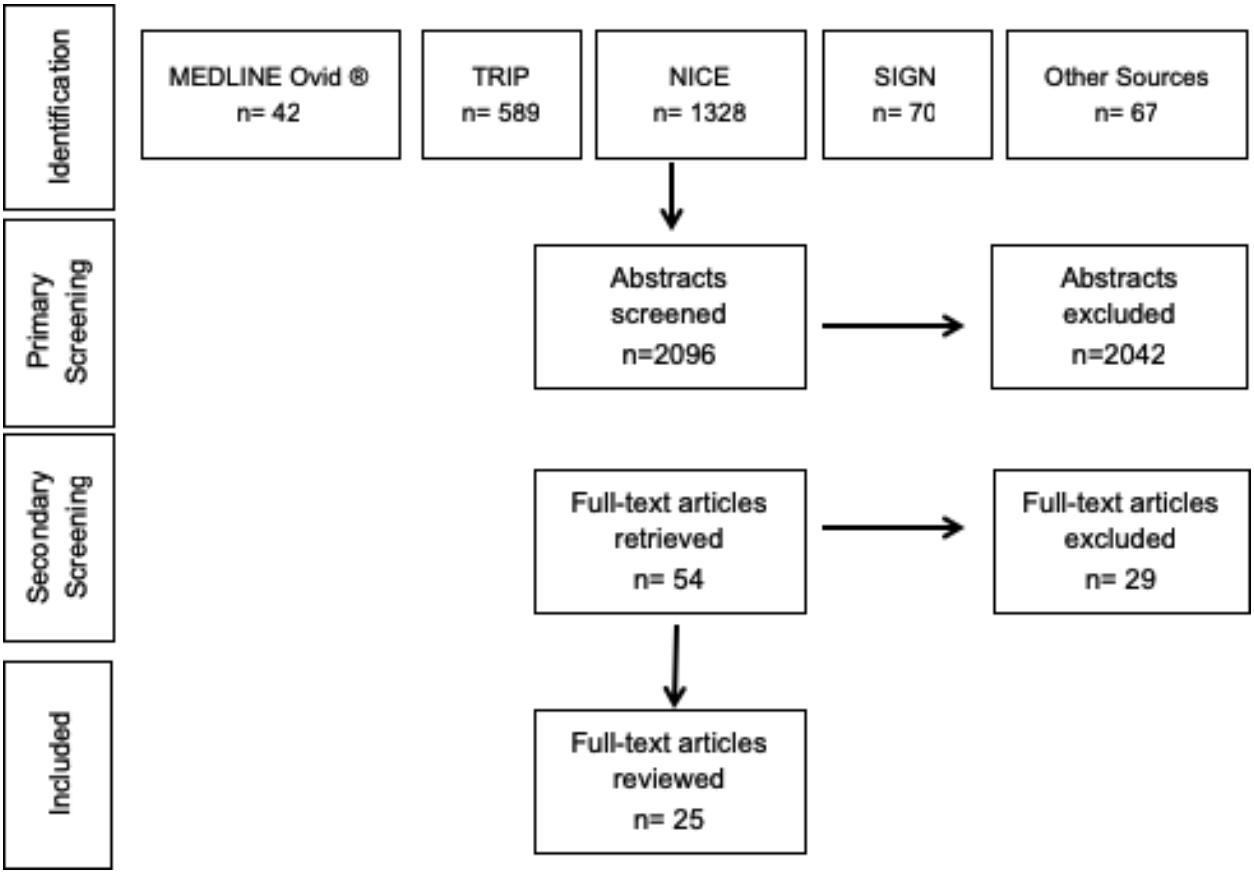

Figure 1

RIGHT statement reporting tool items	Level of agreement (%)
1a	100
1b	100
1c	100
2	80
3	60
4	80
5	100
6	40
7a	80
7b	80
8a	60
8b	100
9a	100
9b	100
10a	80
10b	100
11a	60
11b	40
12	80
13a	60
13b	100
13c	60
14a	60
14b	100
14c	80
15	80
16	100
17	100
18a	100
18b	100
19a	100
19b	100
20	100
21	100
22	100

Table 1

Title of Guideline	Developing Organization	Single or Multi-center	RIGHT checklist score
Management Considerations for Pediatric Oral Surgery and Oral Pathology	American Academy of Pediatric Dentistry	Single	26
Management of Unerupted Maxillary Incisors	Royal College of Surgeons of England	Multi	28
Management of the Palatally Ectopic Maxillary Canine	Royal College of Surgeons of England	Multi	35
Temporomandibular Disorders (TMDs): an update and management guidance for primary care from the UK Specialist Interest Group in Orofacial Pain and TMDs (USOT)	Royal College of Surgeons of England	Multi	41
The Oral Management of Oncology Patients Requiring Radiotherapy, Chemotherapy and/or Bone Marrow Transplantation	Royal College of Surgeons of England	Single	31
Guidelines for Selecting Appropriate Patients to Receive Treatment with Dental Implants: Priorities for the NHS	Royal College of Surgeons of England	Multi	28
Guidelines for Surgical Endodontics	Royal College of Surgeons of England	Multi	18
Management of primary cutaneous squamous cell carcinoma	Scottish Intercollegiate Guidelines Network	Multi	65
Oral health management of patients at risk of medication-related osteonecrosis of the jaw	National Institute for Health and Care Excellence	Multi	59
The Management of Patients With Third Molar Teeth	National Institute for Health and Care Excellence	Single	29
Guideline on acquired temporomandibular disorders in infants, children, and adolescents	National Institute for Health and Care Excellence	Single	30
Total prosthetic replacement of the temporomandibular joint	National Institute for Health and Care Excellence	Single	28
Guidance on the Extraction of Wisdom Teeth	National Institute for Health and Care Excellence	Single	26
Clinical Practice Guideline: Evaluation of The Neck Mass in Adults.	American Academy of Otolaryngology - Head and Neck Surgery Foundation	Multi	66
Conscious Sedation in Dentistry	Scottish Dental Clinical Effectiveness Programme	Multi	57
Evidence-based clinical practice guideline for the evaluation of potentially malignant disorders in the oral cavity: a report of the American Dental Association.	American Dental Association	Multi	59
Oral and Craniofacial Implant Surgery	American Association of Oral and Maxillofacial Surgeons	Single	14
Temporomandibular Joint Surgery	American Association of Oral and Maxillofacial Surgeons	Single	14

Surgical Correction of Maxillofacial deformities	American Association of Oral and Maxillofacial Surgeons	Single	16
Diagnosis and Management of Pathological Conditions	American Association of Oral and Maxillofacial Surgeons	Single	19
Trauma Surgery	American Association of Oral and Maxillofacial Surgeons	Single	18
Facial Cosmetic Surgery	American Association of Oral and Maxillofacial Surgeons	Single	19
Guidelines to the Evaluation of Impairment of the Oral and Maxillofacial Region	American Association of Oral and Maxillofacial Surgeons	Single	21
Management of Dental Patients Taking Anticoagulants or Antiplatelet Drugs	Scottish Dental Clinical Effectiveness Programme	Multi	58
Conscious sedation	British Dental Association	Single	18

Table 2

Characteristic	Category	n	%
Publication year	1997	1	4
	2000	1	4
	2011	1	4
	2012	3	12
	2013	1	4
	2014	2	8
	2015	3	12
	2016	2	8
	2017	10	40
	2018	1	4
Country	UK	14	56
	USA	11	44
Number of centers	Single center	14	56
	Multi center	11	44
Source of guideline	Specialty based	14	56
	Non- Specialty based	11	44
Type of guideline	Expert opinion	1	4
	Consensus based	1	4
	Formal evidence	3	12
	Mixed type	20	80

Table 3

RIGHT Checklist Item	Not reported (%)	Partially reported (%)	Fully reported (%)
1a) Identify the report as a guideline, that is, with "guideline(s)" or "recommendation(s)" in the title	12	0	88
1b) Describe the year of publication of the guideline	12	0	88
1c) Describe the focus of the guideline, such as screening, diagnosis, treatment, management, prevention or others	44	0	56
2) Provide a summary of the recommendations contained in the guideline	40	4	56
3) Define new or key terms, and provide a list of abbreviations and acronyms if applicable	48	0	52
4) Identify at least one corresponding developer or author who can be contacted about the guideline	44	0	56
5) Describe the basic epidemiology of the problem, such as the prevalence/incidence, morbidity, mortality, and burden (including financial) resulting from the problem.	48	8	44
6) Describe the aim(s) of the guideline and specific objectives, such as improvements in health indicators (e.g., mortality and disease prevalence), quality of life, or cost savings	28	4	68
7a) Describe the primary population(s) that is addressed by the recommendation(s) in the guideline.	4	4	92
7b) Describe any subgroups that are given special consideration in the guideline.	16	4	80
8a) Describe the intended primary users of the guideline (such as primary care providers, clinical specialists, public health practitioners, program managers, and policy-makers) and other potential users of the guideline	24	36	40
8b) Describe the setting(s) for which the guideline is intended, such as primary care, low- and middle-income countries, or in-patient facilities	56	8	36
9a) Describe how all contributors to the guideline development were selected and their roles and responsibilities (e.g., steering group, guideline panel, external reviewer, systematic review team, and methodologists)	72	12	16
9b) List all individuals involved in developing the guideline, including their title, role(s) and institutional affiliation(s)	44	8	48
10a) State the key questions that were the basis for the recommendations in PICO (population, intervention, comparator, and outcome) or other format as appropriate	96	0	4
10b) Indicate how the outcomes were selected and sorted	64	4	32
11a) Indicate whether the guideline is based on new systematic reviews	60	0	40
11b) If the guideline developers used existing systematic reviews, reference these and describe how those reviews were identified and assessed (provide the search strategies and the selection criteria, and describe how the risk of bias was evaluated) and whether they were updated	16	48	36
12) Describe the approach used to assess the certainty of the body of evidence	60	12	28
13a) Provide clear, precise, and actionable recommendations	0	40	60
13b) Present separate recommendations for important subgroups if the evidence suggests that there are important differences in factors influencing recommendations, particularly the balance of benefits and harms across subgroups	20	4	76
14a) Describe whether values and preferences of the target population(s) were considered in the formulation of each recommendation. If yes, describe the approaches and methods used to elicit or identify these values and preferences. If values and preferences were not considered, provide an explanation	48	20	32
14b) Describe whether cost and resource implications were considered in the formulation of recommendations. If yes, describe the specific approaches and methods used (such as cost-effectiveness analysis) and summarize the results. If resource issues were not considered, provide an explanation	72	8	20
14c) Describe other factors taken into consideration when formulating the recommendations, such as equity, feasibility and acceptability	80	4	16
15) Describe the processes and approaches used by the guideline development group to make decisions, particularly the formulation of recommendations (such as how consensus was defined and achieved and whether voting was used)	68	8	24
16) Indicate whether the draft guideline underwent independent review and, if so, how this was executed and the comments considered and addressed.	68	12	20
17) Indicate whether the guideline was subjected to a quality assurance process. If yes, describe the process	76	0	24
18a) Describe the specific sources of funding for all stages of guideline development	76	0	24
18b) Describe the role of funder(s) in the different stages of guideline development and in the dissemination and implementation of the recommendations	84	0	16
19a) Describe what types of conflicts (financial and non-financial) were relevant to guideline development	80	4	16
19b) Describe how conflicts of interest were evaluated and managed and how users of the guideline can access the declarations	76	0	24
20) Describe where the guideline, its appendices, and other related documents can be accessed	4	0	96
21) Describe the gaps in the evidence and/or provide suggestions for future research	36	12	52
22) Describe any limitations in the guideline development process (such as the development groups were not multidisciplinary or patients" values and preferences were not sought), and indicate how these limitations might have affected the validity of the recommendations	88	4	8

Table 4

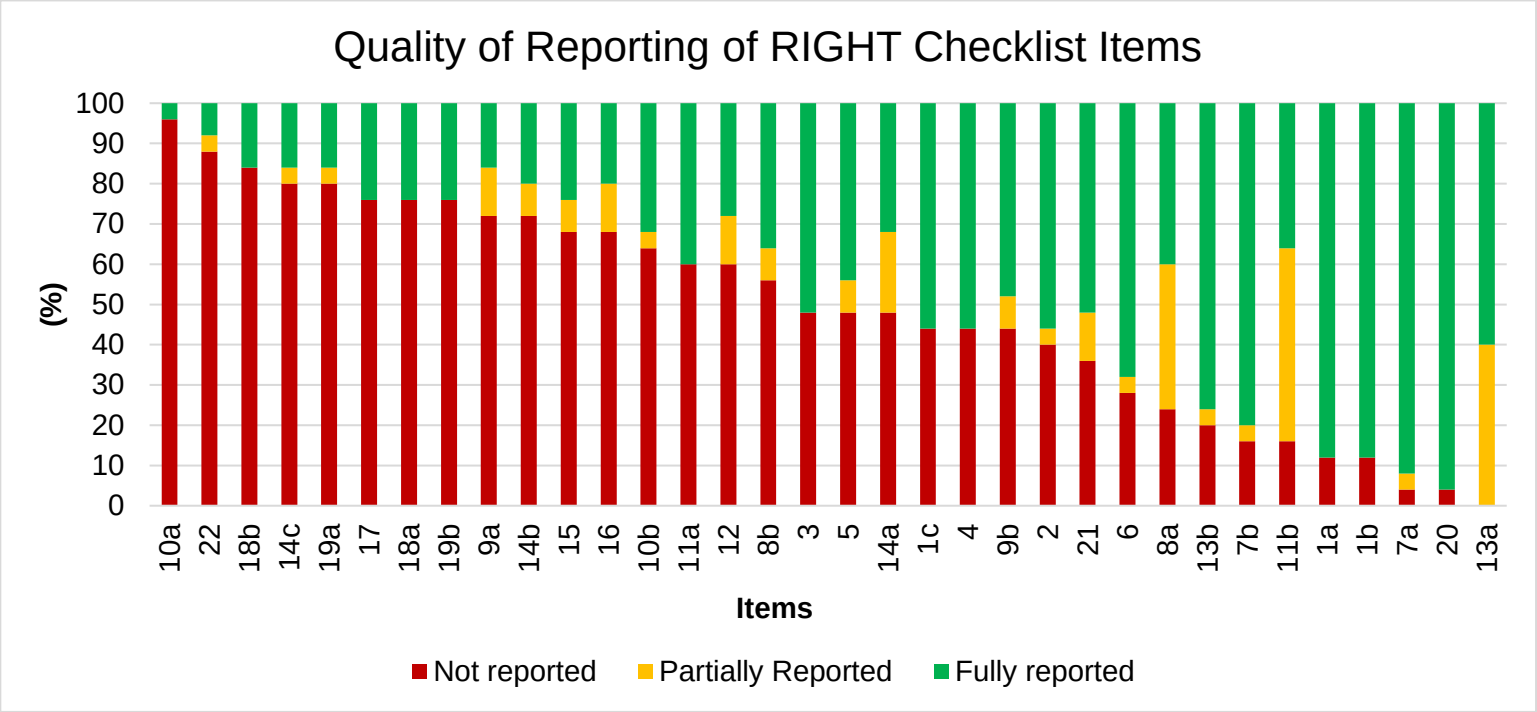
Quality of Reporting of RIGHT Checklist Items
100
90
80
70
60
50
40
30
20
10
0
(%)
10a
22
18b
14c
19a
17
18a
19b
9a
14b
15
16
10b
11a
12
8b
3
5
14a
1c
4
9b
2
21
6
8a
13b
7b
11b
1a
1b
7a
20
13a
Items
Not reported
Partially Reported
Fully reported

Figure 2

Predictor Variables		Univariable			Multivariable		
Variable	**Category**	**β-coefficient**	**95% CI**	**p-value**	**β-coefficient**	**95% CI**	**p-value**
Continent	Europe	Baseline (reference)					
	N. America	-17.15	-50.95, 16.65	0.31			
Type	Expert Opinion	Baseline (reference)					
	Consensus based	-4.29	-112.92,104.3	0.94			
	Formal evidence	20	-68.69, 108.69	0.64			
	Mixed type	10	-68.71,88.71	0.79			
Number of centers	Single	Baseline (reference)			Baseline reference		
	Multi	51.43	30.32, 72.54	0.000**	57.15	-26.62, 87.68	0.001
Source	Specialty based	Baseline (reference)					
	Non-specialty based	20	-0.03, 40.03	0.05*	10	-20.53, 40.53	0.503

Table 5

Legends to figures and tables

Figure 1 Flow diagram of full-text article identification

Figure 2 Graph representing percentage distribution of scoring for each item in the RIGHT checklist for clinical guidelines (n=25).

Table 1 Inter-assessor reliability (Kappa agreement) scores per item of RIGHT statement reporting tool

Table 2 List of guidelines identified and individual RIGHT checklist scores (n=25)

Table 3 Characteristics of clinical practice guidelines included (n=25)

Table 4 Percentage distribution of scoring for each item in the 22-item RIGHT Checklist for clinical practice guidelines (n= 25)

Table 5 Univariate and multivariate linear regression derived coefficients (β) and 95% confidence intervals (CI) for Median percentage total score as dependent variable for the 25 clinical practice guidelines. * p-value <0.05, ** p-value <0.01

Appendix I 22 item RIGHT checklist